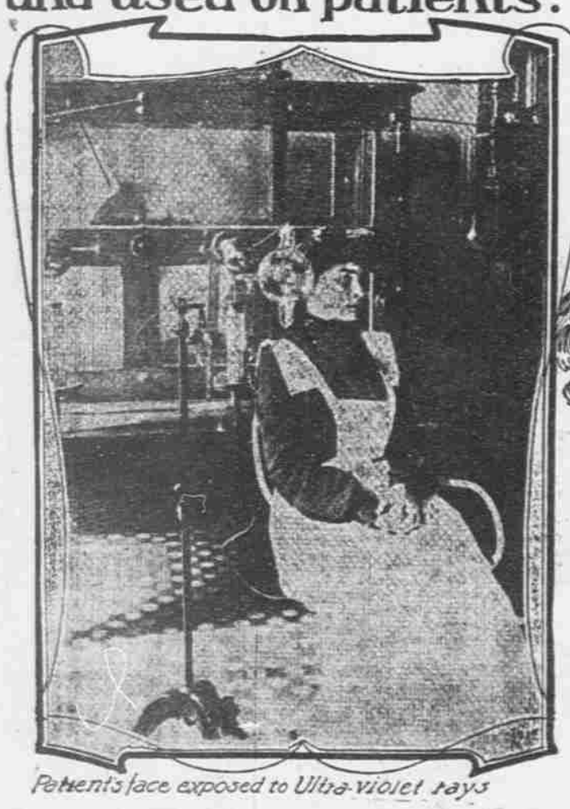
THE SUNDAY REPUBLIC POSTER GIRL.

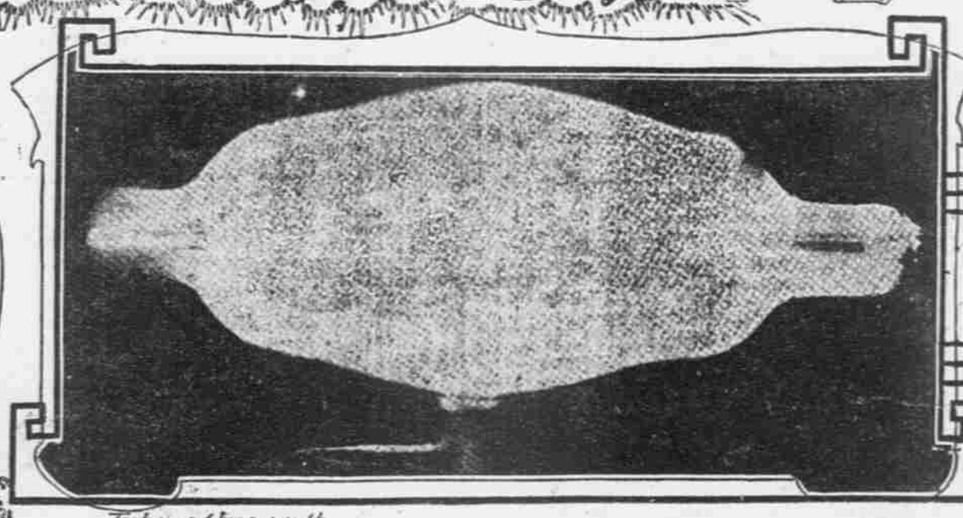
This new poster, if mounted carefully, will make a most attractive picture for "den" or library. Cut out the picture along the heavy lines and paste it onto red or green posterboard. A board 12x15 inches is large enough and can be procured at a slight cost. Ordinary cardboard may be used as a substitute.

The Curative Ultra-violet Rays for Everybody.

The Mount Bleyer process by which the rays can be produced and used on patients.

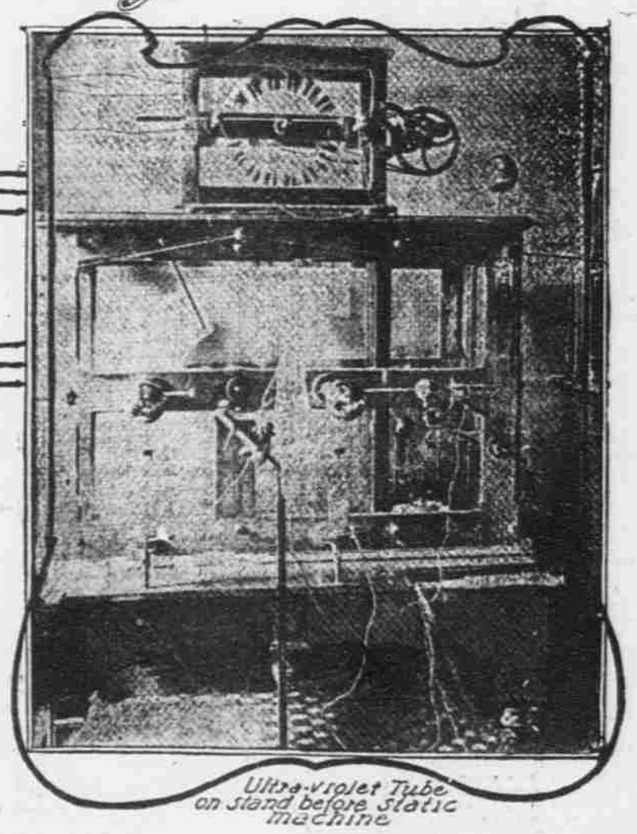


Patient's face exposed to Ultra-violet rays



Tube a glow with Ultra-violet light Photographed in dark room

Dr J Mount Bleyer photographed in dark room with rays from Ultra-violet lamp



Ultra-violet Tube on stand before static machine

WRITTEN FOR THE SUNDAY REPUBLIC.

The precious ultra-violet rays, for which so much is claimed in medicine, may now be obtained at a reasonable price.

An apparatus has been devised recently by Doctor J. Mount Bleyer of New York, which it is believed brings this remarkable consumption cure within the reach of all.

Professor Niels R. Finsen of Copenhagen has treated tuberculosis of the skin with the ultra-violet rays, which he conveys from their source in a carbon arc lamp to the patient through a form of telescope containing four rock crystal lenses. These lenses cut off much of the heat, but allow a trifle more than one-half of the ultra-violet to pass through.

Ordinary glass placed between Professor Finsen's lamp and the patient cuts off almost all the ultra-violet rays, whereas a block of rock crystal one-sixth of an inch thick will allow 60 per cent of the ultra-violet rays to pass through. A part of the heat is also absorbed by distilled water inside the telescope.

To keep this liquid cool the apparatus is fitted with an outside jacket, through which cold water is circulated.

Doctor Bleyer said in the course of his demonstrations that it had for years been his object to perfect an instrument for the generating of the ultra-violet rays which any practitioner could afford to buy.

FINSEN'S TELESCOPIC LAMP
IS VERY EXPENSIVE.

"Finsen's arc lamp, with its 'telescope,' containing four indispensable and expensive rock crystal lenses and a quantity of distilled water, and surrounded by a jacket of circulating cold water, is," he said, 'beyond the reach of the ordinary doctor, in whose hands it might prove of incalculable benefit to mankind.

"Added to the heavy purchase price is the great expense of maintenance. Besides the question of cost there is the question of danger to the patient and to the manipulator from burns.

"The Finsen ray without its protection of rock crystal and water would burn the flesh like a hot poker. The light, containing all the colors of the spectrum, is so powerful that the attendants are forced to protect their eyes with blue spectacles. Of these colors the ultra-violet alone is efficacious in the treatment of skin diseases. All the rest are superfluous.

"My light is inexpensive; it is cold; it will pass through glass without loss of strength or effect; it will not injure either the patient or the manipulator; it is a pronounced violet, with none of the other colors of the spectrum to contaminate it, and it will unquestionably prove of inestimable value in the treatment of tuberculosis of the skin.

"These ultra-violet rays which I generate within the Crookes tube seem to have a far more penetrating quality than those of the arc light or those of the other lamps which I have particularly examined. I find that they show their presence in full strength whether glass is interposed between the fluorescent materials or not.

RAYS IN VACUUM
ARE NOT OBSTRUCTED.

"These rays in vacuum do not allow themselves to be obstructed. I can even photograph my watch, or any other object, suspended before a platinocyanide screen, by shading the rays upon it in a dark room. This certainly shows that the special ultra-violet rays pass through glass, and I consider it a fine test for their penetrating quality."

Without any appreciable variation in the degree of vacuity or difference in the placing of the poles, Doctor Bleyer's tubes, as shown in his demonstrations, are of various shapes and sizes.

For the treatment of external diseases, such as lupa or tuberculosis of the skin, he uses a large bulb, which produces a flood of ultra-violet light. For the treatment of similar diseases in the throat, nose or other accessible cavities he uses small tubes, shaped in conformity with the lines of the interior walls.

It is for this work in particular that Doctor Bleyer's tubes surpass Professor Finsen's arc light.

"Because of its formation and the heat given off by it," said Doctor Bleyer, 'the Finsen light is useless for close interior application. Applied externally, its efficacy is unquestionable. I have used for fifteen years in the treatment of consumption an arc lamp similar in construction to a searchlight and not less powerful.

RAYS FROM LAMP
LIGHT THE LUNGS.

"The rays from this lamp light the lungs as the rays from the sun light a room. Light is the deadliest enemy of the tuberculosis germ, whether in the skin or in the lungs. With damp, dark quarters for its habitation the pest thrives; with dry, light surroundings it dies.

"Sunlight is good; electric light, properly arranged, is better. The latter will do in six months the work that the sun could not do in two years; this, of course, because of the greater degree of intensity in the artificial light.

"If we as a community sincerely desire to knock out the tubercular germ we must give the patient plenty of light. If we cannot arrange for hospitals with floods of sunlight and an unlimited supply of fresh air we must bathe the patient's lungs daily with light from the arc lamp, which is sunlight intensified, until the germs are killed. Both the light from the sun and the light from the arc lamp contain, along with the other colors of the spectrum, the ultra-violet rays. My new Crookes tube, as I have shown, produces these subtle rays alone, with no hint of any other color."

It is now a question whether the Noble prize of $50,000, as a reward for contributions to surgery and medicine, which went to Denmark, should not have come to America.

American Substitutes for Tea Gown in the Orient.

WRITTEN FOR THE SUNDAY REPUBLIC.

Many substitutes for tea can be found in any ordinary woods.

The idea is not a new one, for many country folk made use of the substitutes in the days when the luxury of Chinese tea was not so easily afforded as now.

Before the Revolution, when the colonists were in a turmoil over the stamp taxes, it was considered unpatriotic to drink tea that had paid tribute to the Government, and the so-called Liberty tea was the popular drink.

The four-leaved loose strife was, no doubt, the herb from which this beverage was made, possibly with the aid of various other herbs.

This plant grows a foot or two high, and may be recognized by its simple, upright stem, upon which the leaves are set in whorls of four or five, the yellow starlike flowers being produced on long, slender stocks from near the base of the leaves. It is common to almost every woodland.

The leaves of the New Jersey tea, a low bush which grows everywhere in dry woodlands, and bears in June and July a profusion of delicate white blooms, was also extensively used during the Revolution.

An infusion of the leaves boils a bright amber color, and in looks is as attractive as the real beverage; but the taste, though astringent, is by no means lively.

Some effort has been recently made in commercial circles to revive the use of this plant as a substitute for tea. The leaves are said to contain about 10 per cent of tannin. Hemlock leaves and those of the arbor vitae have played an important part in the making of rustic tea. The arbor vitae is a tree that grows wild in great abundance in Northern woods, and the old time Maine lumbermen used frequently to resort to its leaves for tea when other herbage failed them for the purpose. It was thought to be very invigorating.

The leaves of the wintergreen, a small plant whose bright red berries, about the size of peas, are sold on the streets under the name of teaberry, have long been used for tea.

From this it takes the name by which it is known in Pennsylvania. New Englanders, for some unknown reason, call it checkerberry. The foliage is very aromatic, and people who like a dash of spiciness in their drink have sometimes added its flavor to real tea.

It is near of kin and similar in taste to the creeping snowberry, a small, delicate vine, abundant in the great bogs and mossy woods of the North and Allegheny regions, and this is also approved by mountain palates as a substitute for tea.

Thoreau, in "The Maine Woods," tells of his Indian guide bringing it into camp one night and recommending it as the best of all substitutes for tea. "It has a slight checkerberry flavor," he records, "and we both agree that it was better than the black tea we had brought. We thought it a discovery and that it might be dried and sold in the shops."

Better known as a tea plant is the Labrador tea, or the ledum latifolia of the botanists, which grows in cold bogs and mountain woods from Pennsylvania northward. The leaves, which emit a slight, not unpleasant fragrance when bruised, are tough and leathery, and covered with a rusty brown wool. Steeped, they give a wild, gamy flavor to hot water, and the drink resulting suggests a poor grade of black tea.

Sweet fern, which is such an abundant growth everywhere on sterile hillside and by mountain roads, is another famous tea plant, often known as "mountain tea." During the War of the Rebellion its use for tea was particularly prevalent in the Southern States, and many a Southern lady who was reared in luxury was reduced to drinking this poor substitute for her favorite Oolong or fine Bohea Pekoe.

The foliage and flowers of the goldenrods are imbued with an astringent principle, and are moderately stimuant, so that their suitability for the manufacture of a domestic tea was recognized by the American colonists as long ago as when George III was King over them. One species, the fragrant-leaved goldenrod, known sometimes as Blue Mountain tea, possesses, in addition, the flavor of licorice. Drunk piping hot in the wilderness, it makes a pleasant feature in the camper's limited menu.